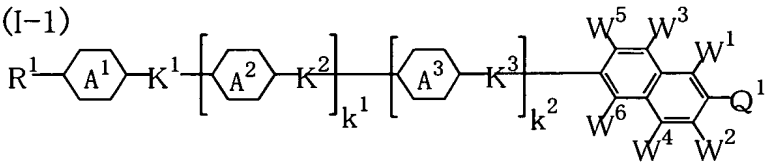
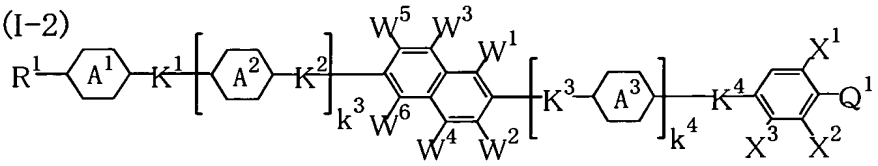
CLAIMS

1. A nematic liquid crystal composition comprising a liquid crystal component A composed of one, or two or more kinds of compounds represented by one, two, or three or more general formulas selected from the general formulas (I-1) to (I-5):

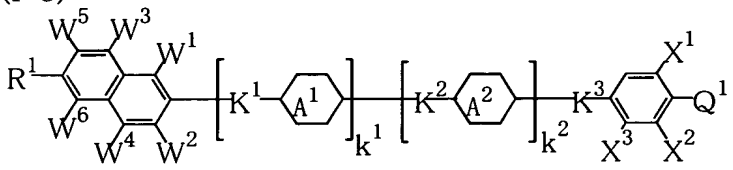
(I-1)



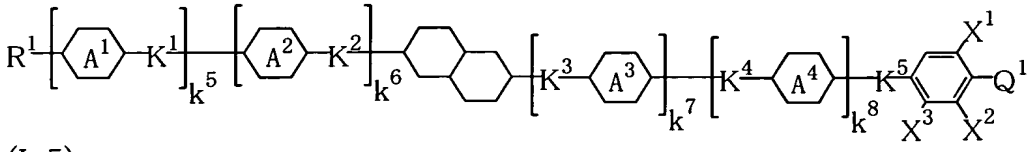
(I-2)



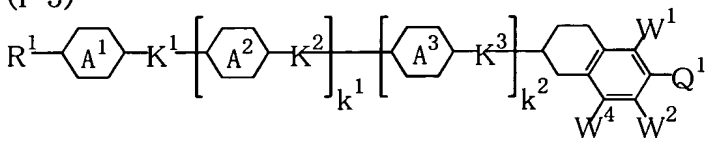
(I-3)



(I-4)



(I-5)



(wherein one, or two or more CH groups, which are present in a naphthalene-2,6-diyl ring, may be substituted with a N group, one, or two or more $-CH_2-$ groups, which are present in a decahydronaphthalene-2,6-diyl ring, may be substituted with $-CF_2-$, one, or two or more $-CH_2-$ CH_2- groups, which are present in said ring, may be substituted with -

CH_2O-, -CH=CH-, -CH=CF-, -CF=CF-, -CH=N- or -CF=N-, one, or two or more >CH-CH_2-groups, which are present in said ring, may be substituted with >CH-O-, >C=CH-, >C=CF-, >C=N- or >N-CH_2-, a >CH-CH< group, which is present in the ring, may be substituted with >CH-CF<, >CF-CF< or >C=C<, and at least one C in said non-substituted or substituted ring may be substituted with Si;

R^1 each independently represents an alkyl group having 1 to 10 carbon atoms or an alkenyl group having 2 to 10 carbon atoms, said alkyl or alkenyl group can have one, or two or more F, Cl, CN, CH_3 or CF_3 as a non-substituent or substituent group, and one, or two or more CH_2 group, which are present in said alkyl or alkenyl group, may be substituted with O, CO or COO, while O atoms do not bond with each other directly;

Q^1 each independently represents F, Cl, CF_3, OCF_3, OCF_2H, $OCFH_2$, NCS, or CN;

X^1 to X^3 each independently represents H, F, Cl, CF_3, OCF_3, or CN; X^3 each independently represents CH_3;

W^1 to W^6 each independently represents H, F, Cl, CF_3, OCF_3, or CN, and also W^4 each independently represents CH_3;

K^1 to K^5 each independently represents, a single bond, -COO-, -OCO-, $-CH_2O$-, $-OCH_2$-, -CH=CH-, -CF=CF-, -C≡C-, $-(CH_2)_2$-, $-(CH_2)_4$-, -CH=CH-$(CH_2)_2$-, $-(CH_2)_2$-CH=CH-, -CH=N-, =CH=N-N=CH-, or -N(O)=N-;

rings A^1 to A^4 each independently represents 1,4-phenylene, 2- or 3-fluoro-1,4-phenylene, 2,3-difluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, 2- or 3-chloro-1,4-

phenylene, 2,3-dichloro-1,4-phenylene, 3,5-dichloro-1,4-phenylene, pyrimidine-2,5-diyl, trans-1,4-cyclohexylene, trans-1,4-cyclohexenylene, trans-1,3-dioxane-2,5-diyl, trans-1-sila-1,4-cyclohexylene, trans-4-sila-1,4-cyclohexylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, and naphthalene-2,6-diyl and 1,2,3,4-tetrahydronaphthalene-2,6-diyl can have one, or two or more F, Cl, CF_3 OCF_3 or CH_3 as a non-substituent or substituent group;

one, or two or more hydrogen atoms, which are present in a naphthalene-2,6-diyl ring, a 1,2,3,4-tetrahydronaphthalene-2,6-diyl ring, a decahydronaphthalene-2,6-diyl ring, a side chain group R^1, a polar group Q^1, linking groups K^1 to K^5 and rings A^1 to A^4, may be substituted with a deuterium atom;

k^1 to k^8 each independently represents 0 or 1, $k^3 + k^4$ is 0 or 1, and $k^5 + k^6 + k^7 + k^8$ is 0, 1 or 2; and

atoms, which constitute the compounds of the general formulas (I-1) to (I-5), may be substituted with isotope atoms thereof); 0 to 99.9% by weight of a liquid crystal component B composed of a compound having a dielectric constant anisotropy of +2 or more as a liquid crystal component excluding the compounds of the general formulas (I-1) to (I-5); and 0 to 85% by weight of a liquid crystal component C composed of a compound having a dielectric constant anisotropy within a range from -10 to +2; the sum total of said liquid crystal component B and said liquid crystal component C being within a range from 0 to 99.9% by weight.

2. A nematic liquid crystal composition according to claim 1, wherein said liquid crystal component A satisfies at least one of the following conditions:

(i) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(ii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(iii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(iv) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented

by the general formula (I-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(v) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(vi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(vii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(viii) said liquid crystal component A contains one, or

two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(ix) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(x) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), the content of said selected compounds in said liquid

crystal component A being within a range from 5 to 100% by weight;

(xii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xiii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xiv) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said

liquid crystal component A being within a range from 5 to 100% by weight;

(xv) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xvi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xvii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said

liquid crystal component A being within a range from 5 to 100% by weight;

(xviii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xix) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xx) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid

crystal component A being within a range from 5 to 100% by weight;

(xxi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxiii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds

selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxiv) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxv) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxvi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds

represented by the general formula (I-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), one, or two or more kinds of compounds selected from compounds represented by the general formula (I-4) and one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 10 to 100% by weight;

(xxvii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-1), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxviii) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-2), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxix) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-3), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight;

(xxx) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds

represented by the general formula (I-4), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight; and

(xxxi) said liquid crystal component A contains one, or two or more kinds of compounds selected from compounds represented by the general formula (I-5), the content of said selected compounds in said liquid crystal component A being within a range from 5 to 100% by weight.

3. A nematic liquid crystal composition according to claim 1 or 2, wherein said liquid crystal component A contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (I-ai) to (I-avii), the content of said compounds being within a range from 10 to 100% by weight:

(I-ai) compound in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms,

(I-aii) compound in which Q^1 is F, Cl, CF_3, OCF_3, OCF_2H, or CN,

(I-aiii) compound in which K^1 to K^5 represent single bond, $-(CH_2)_2-$, -COO-, or $-C\equiv C-$,

(I-aiv) compound in which rings A^1 to A^4 represent trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene, and

(I-av) compound in which one, or two or more hydrogen atoms, which are present in naphthalene-2,6-diyl ring, a 1,2,3,4-tetrahydronaphthalene-2,6-diyl ring, a decahydronaphthalene-2,6-diyl ring, a side chain group R^1, a polar group Q^1, linking

groups K^1 to K^5 and rings A^1 to A^4, are substituted with deuterium atoms, in the general formulas (I-1) to (I-5);

(I-avi) compound in which W^1 to W^3 represent H, F, Cl, CF_3, or OCF_3 in the general formulas (I-1) to (I-3) and (I-5); and

(I-avii) compound in which X^1 and X^2 represent H, F, Cl, CF_3, or OCF_3 in the general formulas (I-2) to (I-4).

4. A nematic liquid crystal composition according to any one of claims 1 to 3, wherein said liquid crystal component A contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (I-bi) to ~~(I-bvii)~~(I-bxi), the content of said compounds being within a range from 5 to 100% by weight:

(I-bi) compound in which $k^1=k^2=0$, the ring A^1 is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, K^1 is a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, and

(I-bii) compound in which $k^1=1$, $k^2=0$, rings A^1 and A^2 represent trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, K^1 is a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, K^1 and K^2 represent a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, in the general formula (I-1) in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, Q^1 is F, Cl, CF_3, OCF_3, or CN, and W^1 to W^3 each

represents H, F, Cl, CF_3, or OCF_3;

(I-biii) compound in which $k^3=k^4=0$, the ring A^1 is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene, and K^1 and K^4 represent a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, in the general formula (I-2) in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, Q^1 is F, Cl, CF_3, OCF_3, or CN, X^1 and X^2 represent H, F, Cl, CF_3, or OCF_3, and W^1 to W^3 represent H, F, Cl, CF_3, or OCF_3;

(I-biv) compound in which $k^1=k^2=0$, K^3 is a single bond, -COO-, or -C≡C-, and

(I-bv) compound in which $k^1=1$, $k^2=0$, the ring A^1 is 1,4-phenylene, 3-fluoro-1,4-phenylene, or a 3,5-difluoro-1,4-phenylene, K^1 and K^3 represent single bond, -COO- or -C≡C-, in the general formula (I-3) in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, Q^1 is F, Cl, CF_3, OCF_3, or CN, X^1 and X^2 represent H, F, Cl, CF_3, or OCF_3, and W^1 to W^3 represent H, F, Cl, CF_3, or OCF_3;

(I-bvi) compound in which $k^5=k^6=k^7=k^8=0$, K^5 is a single bond, $-(CH_2)_2-$, $-(CH_2)_4-$, -COO-, or -C≡C-,

(I-bvii) compound in which $k^5=1$, $k^6=k^7=k^8=0$, the ring A^1 is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene, K^1 and K^5 represent a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-,

(I-bviii) compound in which $k^7=1$, $k^5=k^6=k^8=0$, the ring A^3 is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene, K^3 and K^5 represent a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, and

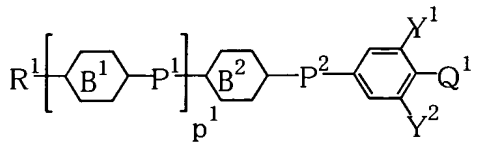
(I-bix) compound in which the decahydronaphthalene-2,6-diyl ring has at least one substituent among substituents $-CF_2-$, $-CH_2-O-$, $-CH=CH-$, $-CH=CF-$, $-CF=CF-$, $-CH=N-$, $-CF=N-$, $>CH-O-$, $>C=CH-$, $>C=CF-$, $>C=N-$, $>N-CH_2-$, $>CH-CF<$, $>CF-CF<$, $>C=C<$, and Si, in the general formula (I-4) in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, Q^1 is F, Cl, CF_3, OCF_3, or CN, and X^1 and X^2 represent H, F, Cl, CF_3, OCF_3; and

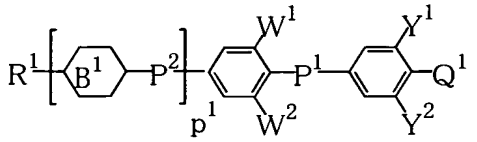
(I-bx) compound in which $k^1=k^2=0$, the ring A^1 is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, K^1 is a single bond, $-(CH_2)_2-$, $-(CH_2)_4-$, or $-COO-$, and

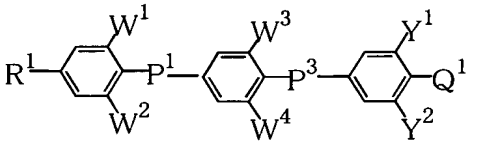
(I-bxi) compound in which $k^1=1$, $k^2=0$, rings A^1 and A^2 represent trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, and K^1 and K^2eac represents a single bond, $-(CH_2)_2-$, $-(CH_2)_4-$, or $-COO-$, in the general formula (I-5) in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, Q^1 is F, Cl, CF_3, OCF_3, or CN, and W^1 and W^2 represent H, F, Cl, CF_3, or OCF_3.

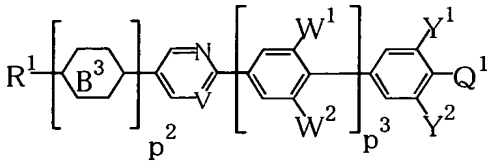
5. A nematic liquid crystal composition according to any one of claims 1 to 4, wherein said liquid crystal component B contains one, or two or more kinds of compounds selected from the group of compounds represented by the general formulas

(II-1) to (I-4):

(II-1) 

(II-2) 

(II-3) 

(II-4) 

(wherein R^1 each independently represents an alkyl group having 1 to 10 carbon atoms or an alkenyl group having 2 to 10 carbon atoms, said alkyl or alkenyl group can have one, or two or more F, Cl, CN, CH_3 or CF_3 as a non-substituent or substituent group, and one, or two or more CH_2 group, which are present in said alkyl or alkenyl group, may be substituted with O, CO or COO, while O atoms do not bond with each other directly;

Q^1 each independently represents F, Cl, CF_3, OCF_3, OCF_2H, $OCFH_2$, NCS, or CN;

W^1 to W^4 each independently represents H, F, Cl, CF_3, OCF_3, or CN, and also W^4 each independently represents CH_3;

Y^1 and Y^2 each independently represents H, F, Cl, ~~CF_3, OCF_3, or CN~~;

V represents CH or N;

P^1 to P^3 each independently represents, a single bond, -COO-, -OCO-, $-CH_2O-$, $-OCH_2-$, $-(CH_2)_2-$, $-(CH_2)_4-$, -CH=CH-, $(CH_2)_2-$, $-(CH_2)_2-CH=CH-$, -CH=N-, =CH=N-N=CH-, or -N(O)=N-, and P^1 and P^3 each independently represents -CH=CH-, -CF=CF-, or C≡C-;

rings B^1 to B^3 each independently represents trans-1,4-cyclohexylene, trans-1,4-cyclohexenylene, trans-1,3-dioxane-2,5-diyl, trans-1-sila-1,4-cyclohexylene, or trans-4-sila-1,4-cyclohexylene, and the ring B^3 may also be 1,4-phenylene, 2- or 3-fluoro-1,4-phenylene, 3,5-difluorol,4-phenylene, 2 - or 3-chloro-1,4-phenylene, 2,3-dichloro-1,4-phenylene, or 3,5-dichloro-1,4-phenylene;

one, or two or more hydrogen atoms, which are present in a side chain group R^1, a polar group Q^1, linking groups P^1 to P^3 and rings B^1 to B^3, may be substituted with a deuterium atom;

p^1 to p^3 each independently represents 0 or 1, and $p^2 + p^3$ is 0 or 1; and

atoms, which constitute the compounds of the general formulas (II-1) to (II-4), may be substituted with isotope atoms thereof).

6. A nematic liquid crystal composition according to claim 5, wherein said liquid crystal component B contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (II-ai) to (II-axii), the content of said compounds being within a range from

10 to 100% by weight:

(II-ai) compounds in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, in the general formulas (II-1) to (II-4);

(II-aii) compounds in which Q^1 is F, Cl, or $-OCF_3$, in the general formulas (II-1) to (II-4);

(II-aiii) compounds in which P^2 is $-(CH_2)_2-$ or $-(CH_2)_4-$, in the general formula (II-1);

(II-aiv) compound in which p^1 is 1, in the general formula (II-1);

(II-av) compound in which at least one of Y^1, Y^2, W^1 and W^2 is F, in the general formula (II-2);

(II-avi) compound in which p^1 is 1 and $P^1$is $-C\equiv C-$, in the general formula (II-2);

(II-avii) compound in which P^2 is a single bond or $-(CH_2)_2-$ and P^1 is -COO-, in the general formula (II-2);

(II-aviii) compound in which at least one of Y^1, Y^2, and W^1 to W^4 is F, in the general formula (II-3);

(II-aix) compound in which P^3 is $-C\equiv C-$, in the general formula (II-3);

(II-ax) compound in which P^1 is a single bond or $-C\equiv C-$ and P^3 is -COO-, in the general formula (II-3);

(II-axi) compound represented by the general formula (II-4); and

(II-axii) compound in which at least one of rings B^1 to B^3 is substituted with a deuterium atom if the rings B^1 to B^3 represent trans-1,4-cyclohexylene, in the general formulas

(II-1), (II-2) and (II-4).

7. A nematic liquid crystal composition according to claim 5, wherein said liquid crystal component B contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (II-bi) to (II-bviii), the content of said compounds being within a range from 10 to 100% by weight:

(II-bi) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 0, and Q^1 is -CN, in the general formula (II-1);

(II-bii) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 1, Q^1 is F or -CN, and Y1 and Y2 represent H or F, in the general formula (II-1);

(II-biii) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 0, Q^1 is -CN, and Y^1, Y^2, W^1 and W^2 represent H or F, in the general formula (II-2);

(II-biv) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 1, P^2 is a single bond, $-(CH_2)_2-$, or -COO-, P^1 is a single bond, -COO-, or -C≡C-, Q^1 is F or -CN, and Y^1, Y^2, W^1 and W^2 represent H or F, in the general formula (II-2);

(II-bv) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, and one of P^1 and P^3 is a single bond and other one is a single bond, -COO-, or -C≡C-, in the general formula (II-3);

(II-bvi) compound in which R^1 is an alkyl or alkenyl group

having 2 to 5 carbon atoms, and Y^1, Y^2 and W^1 to W^4 represent H or F, in the general formula (II-3);

(II-bvii) compound in which R^1 is an alkyl or alkenyl group having 2 to 7 carbon atoms, and $p^2+p^3=0$, in the general formula (II-4); and

(II-bviii) compounds of the general formulas (II-1) to (II-2) in which at least one hydrogen atom of rings B^1 and B^2 is substituted with a deuterium atom if rings B^1 and B^2 represent trans-1,4-cyclohexylene.

8. A nematic liquid crystal composition according to claim 5, wherein said liquid crystal component B contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (II-ci) to (II-civ), the content of said compounds being within a range from 10 to 100% by weight:

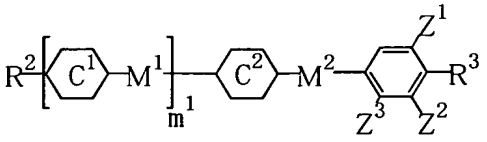
(II-ci) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 1, one of P^1 and P^2 is a single bond and other one is a single bond, -COO-, $-(CH_2)_2-$, or $-(CH_2)_4$, Q^1 is F, Cl, CF_3, OCF_3, or OCF_2H, and one, or two or more of Y^1 and Y^2 represent F, in the general formula (II-2);

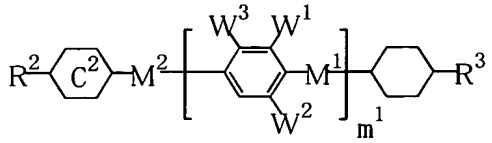
(II-cii) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, p^1 is 1, P^2 is a single bond, $-(CH_2)_2-$, or -COO-, P^1 is a single bond, -COO-, or -C≡C-, Q^1 is F, Cl, CF_3, OCF_3, or OCF_2H, one, or two or more of Y^1 and Y^2 represent F, and W^1 and W^2 represent H or F, in the general formula ~~(II-2)~~ (II-1) ;

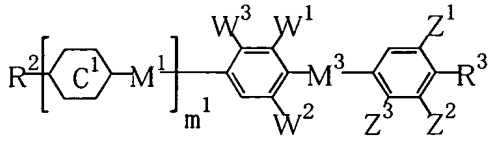
(II-ciii) compound in which R^1 is an alkyl or alkenyl group having 2 to 5 carbon atoms, one of P^1 and P^3 is a single bond and the other one is a single bond, -COO-, or -C≡C-, Q^1 is F, Cl, CF_3, OCF_3, or OCF_2H, one, or two or more of Y^1 and Y^2 represent F, and W^1 to W^4 represent H or at least one of them is F, in the general formula (II-3); and

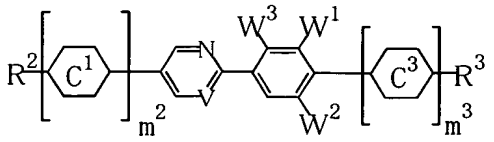
(II-civ) compound of the general formulas (II-1) and (II-2) in which at least three hydrogen atoms of rings B^1 and B^2 are substituted with a deuterium atom if rings B^1 and B^2 represent trans-1,4-cyclohexylene.

9. A nematic liquid crystal composition according to any one of claims 1 to 8, wherein said liquid crystal component C contains compounds selected from the group of compounds represented by the general formulas (III-1) to (III-4):

(III-1) 

(III-2) 

(III-3) 

(III-4) 

(wherein W^1 to W^3 each independently represents H, F, Cl, CF_3,

OCF_3, or CN;

V represents CH or N;

R^2 and R^3 each independently represents an alkyl or alkoxy group having 1 to 10 carbon atoms or an alkenyl or alkenyloxy group having 2 to 10 carbon atoms, said alkyl, alkoxy, alkenyl or alkenyloxy group can have one, or two or more F, Cl, CN, CH_3 or CF_3 as a non-substituent or substituent group, and one, or two or more CH_2 group, which are present in said alkyl, alkoxy, alkenyl or alkenyloxy group, may be substituted with O, CO or COO, while O atoms do not bond with each other directly;

Z^1 to Z^3 each independently represents H, F, Cl, CF_3, OCF_3, or CN, and Z^3 each independently represents $-CH_3$;

M^1 to M^3 each independently represents, a single bond, -COO-, -OCO-, $-CH_2O-$, $-OCH_2-$, $-(CH_2)_2-$, $-(CH_2)_4-$, $-CH=CH-(CH_2)_2-$, $-(CH_2)_2-CH=CH-$, -CH=N-, =CH=N-N=CH-, or -N(O)=N-, and M^1 and M^3 each independently represents -CH=CH-, -CF=CF-, or C≡C-;

rings C^1 to C^3 each independently represents trans-1,4-cyclohexylene, trans-1,4-cyclohexenylene, trans-1,3-dioxane-2,5-diyl, trans-1-sila-1,4-cyclohexylene, trans-4-sila-1,4-cyclohexylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, naphthalene-2,6-diyl and 1,2,3,4-tetrahydronaphthalene-2,6-diyl can have one, or two or more F, Cl, CF_3 , OCF_3 or CH_3 as a non-substituent or substituent group, and rings C^1 and C^3 may also be 1,4-phenylene, 2- or 3-fluoro-1,4-phenylene, 2,3-

difluoro-1,4-phenylene, 3,5-difluoro1,4-phenylene, 2- or 3-chloro-1,4-phenylene, 2,3-dichloro-1,4-phenylene, or 3,5-dichloro-1,4-phenylene;

one, or two or more hydrogen atoms, which are present in side chain groups R^2 and R^3, linking groups M^1 to M^3 and rings C^1 to C^3, may be substituted with a deuterium atom;

m^1 to m^3 each independently represents 0 or 1, and $m^2 + m^3$ is 0 or 1; and

atoms, which constitute the compounds of the general formulas (III-1) to (III-4), may be substituted with isotope atoms thereof).

10. A nematic liquid crystal composition according to claim 9, wherein said liquid crystal component C satisfies at least one of the following conditions:

(i) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(ii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(iii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds

represented by the general formula (III-3), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(iv) said liquid crystal component C contains one, or two or more kinds of compounds selected from the compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(v) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(vi) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(vii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected

compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(viii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(ix) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(x) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(xi) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1), one, or two or more kinds of compounds selected from compounds represented by the general

formula (III-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(xii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(xiii) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(xiv) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2), one, or two or more kinds of compounds selected from compounds represented by

the general formula (III-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight;

(xv) said liquid crystal component C contains one, or two or more kinds of compounds selected from compounds represented by the general formula (III-1), one, or two or more kinds of compounds selected from compounds represented by the general formula (III-2), one, or two or more kinds of compounds selected from compounds represented by the general formula (III-3) and one, or two or more kinds of compounds selected from compounds represented by the general formula (III-4), the content of said selected compounds in said liquid crystal component C being within a range from 5 to 100% by weight.

11. A nematic liquid crystal composition according to claim 9, wherein said liquid crystal component C contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (III-ai) to (III-axii), the content of said compounds being within a range from 10 to 100% by weight:

(III-ai) compounds in which R^2 is an alkenyl group having 2 to 5 carbon atoms, in the general formulas (III-1) to (III-4);

(III-aii) compounds in which R^3 is a straight-chain alkenyl or alkenyloxy group having 2 to 7 carbon atoms, in the general formula (III-1) to (III-4);

(III-aiii) compounds in which m^1 is 0 and M^2 is a single bond or $-(CH_2)_2-$, in the general formula (III-1);

(III-aiv) compound in which m^1 is 1, in the general formula (III-1);

(III-av) compound represented by the general formula (III-2);

(III-avi) compound in which at least one of Z^1, Z^2 and W^1 to W^3 is F, in the general formula (III-3);

(III-avii) compound in which Z^3 is F or $-CH_3$, in the general formula (III-3);

(III-aviii) compound in which m^1 is 0 and M^3 is a single bond, in the general formula (III-3);

(III-aix) compound in which m^1 is 1, M^1 is a single bond, -OCO-, $-CH_2O-$, $-OCH_2-$, $-(CH_2)_2-$, $-(CH_2)_4-$, -CH=CH-$(CH_2)_2-$, $-(CH_2)_2-CH=CH-$, -CH=N-, -CH=N-N=CH-, -N(O)=N-, -CH=CH-, or -CF=CF-, in the general formula (III-3);

(III-ax) compound in which M^1 is COO- or $-C\equiv C-$ and M^3 is -OCO-, $-CH_2O-$, $-OCH_2-$, $-(CH_2)_2-$, $-(CH_2)_4-$, -CH=CH-$(CH_2)_2-$, $-(CH_2)_2-CH=CH-$, -CH=N-, -CH=N-N=CH-, -N(O)=N-, -CH=CH-, -CF=CF-, or $-C\equiv C-$, in the general formula (III-3);

(III-axi) compound represented by the general formula (III-4); and

(III-axii) compounds in which at least one hydrogen atom of rings C^1 to C^3 is substituted with a deuterium atom if rings C^1 to C^3 represent trans-1,4-cyclohexylene, in the general formulas (III-1) to (III-4).

12. A nematic liquid crystal composition according to claim 9, wherein said liquid crystal component C contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (III-bi) to (III-bix), the content of said compounds being within a range from 10 to 100% by weight:

(III-bi) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, m^1 is 0, and M^2 is a single bond, -COO-, or $-(CH_2)_2$, in the general formula (III-1);

(III-bii) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, m^1 is 1, the ring C^1 is trans-1,4-cyclohexylene, and one of M^1 and M^2 is a single bond and other one is a single bond, -COO-, or a $-(CH_2)_2-$, in the general formula (III-1);

(III-biii) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, the ring C^2 is trans-1,4-cyclohexylene or trans-1,4-cyclohexenylene, m^1 is 0, and M^2 is a single bond, -COO-, or $-(CH_2)_2-$, in the general formula (III-2);

(III-biv) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, the ring C^2 is trans-1,4-cyclohexylene or trans-1,4-cyclohexenylene, m^1 is 1, and one of M^1 and M^2 is a single bond, in the general formula (III-2);

(III-bv) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, m^1 is 0, and M^3 is a single bond, -C≡C-, or -CH=N-N=CH-, in the general formula (III-3);

(III-bvi) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, m^1 is 1, M^1 is a single bond, $-(CH_2)_2-$, -COO-, or -C≡C-, and M^2 is a single bond, -COO-, or -C≡C-, in the general formula (III-3);

(III-bvii) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, m^1 is 1, one of M^1 and M^3 is a single bond and other one is a single bond or -C≡C-, and at least one of W^1 and $W^2$is F, in the general formula (III-3);

(III-bviii) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkoxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, and any one of Z^2 and Z^3 is substituted with F or CH_3, in the general formula (III-3); and

(III-bix) compound in which R^2 is an alkyl group having 1 to 5 carbon atoms or an alkenyl group having 2 to 5 carbon atoms, R^3 is an alkyl or alkyloxy group having 1 to 5 carbon atoms, or an alkenyl or alkenyloxy group having 2 to 5 carbon atoms, and $m^2+m^3=0$, in the general formula (III-4).

13. A nematic liquid crystal composition according to any one of claims 1 to 12, wherein said liquid crystal composition contains one, or two or more kinds of core-structure compounds which have four six-membered rings and a liquid crystal phase-isotropic liquid phase transition temperature of 100°C or higher.

14. A nematic liquid crystal composition according to any one of claims 1 to 13, wherein said liquid crystal composition has a dielectric constant anisotropy within a range from 2 to 40, a birefringent index within a range from 0.02 to 0.40, a nematic phase-isotropic liquid phase transfer temperature within a range from 50 to 180°C or higher, and a crystal phase-, smectic phase- or glass phase-nematic phase transfer temperature within a range from -200 to 0°C.

15. A nematic liquid crystal composition according to any one of claims 1 to 14, wherein said liquid crystal composition contains a compound having an optically active group capable of securing an induced helical pitch within a range from 0.5 to 1000 μm.

16. An active matrix, twisted nematic or super twisted nematic liquid display device using the nematic liquid crystal composition of any one of claims 1 to 15.

17. A light scattering type liquid display device comprising a light modulation layer which contains the liquid crystal composition of any one of claims 1 to 15 and a transparent solid substance.

18. A light scattering type liquid display device according to claim 17, wherein said liquid crystal composition formed a continuous layer in said light modulation layer and said transparent solid substance formed a uniform three-dimensional network in said continuous layer.